

SCIENTIFIC RESULTS FROM THE MAMMAL SURVEY.

BY

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III*

A.—A NEW SPECIES OF MYOTIS FROM KANARA.

In dealing with the Genus *Myotis* (under the name *Vespertilio*, Mammalia p. 328 *et seq.*) Blanford arranged these bats in two sections, *viz.*, those with large feet (now generally accepted as a sub-genus under the name *Leuconoe*) and those with small feet (*i.e.*, true *Myotis*). In the Kanara Collection Mr. Shortridge obtained a true *Myotis* so different from any known Indian Species that we propose to describe it under the name.

MYOTIS PEYTONI, sp. n.

A *Myotis*, of the small-footed section, much larger than either *mystacinus* or *nipalensis*.

Fur fairly long (5-6 mm.) and loose. General colour above uniform, dark 'vandyke brown;' washed with paler below. Membranes dusky, almost black, in colour. Wings extending to the base of the outer toe. Calcar comparatively short, extending about halfway to the tail, no post-calcareal lobe. Inner edge of ear convex, tip pointed, outer edge straight above, convex below. Tragus of medium length, its inner edge straight, its outer margin convex, crenulated, with a marked lobe at its base.

Dimensions of the Type.—Head and body, 62; tail, 44; ear, 15; forearm, 46; III finger, metacarpal, 42; first phalanx, 16; second phalanx, 16;—total, 77. IV finger, metacarpal, 41; first phalanx, 12; second phalanx, 11;—total, 60; V finger, metacarpal, 39; first phalanx, 10·5; second phalanx, 8·5;—total, 56; hindleg above ankle, 19; hindfoot, 10; calcar, 15; tragus (length on inner edge), 5·2; greatest breadth (at about half its length), 2·5.

Skull.—Greatest length, 18; zygomatic breadth, 6; braincase, 9; breadth across third upper molar, 7·5; front of canine to back of last molar, 6.

Habitat.—S. India. (Type from Gersoppa Falls, Kanara). Altitude 1,300 ft.

* We find that these papers on the taxonomic results of the Survey promise to be far more frequently required than was foreseen. We think, therefore, it will be most convenient to publish them in future under a uniform heading, with serial numbers (in Roman figures, to prevent confusion with the serial numbers of the "Reports"), and with sectional headings to the subjects treated. This is the third paper to be published and we have decided that it is best so to number it. The earlier papers will be found as follows:—

I—at Vol. XXI, p. 338.
II—at Vol. XXI, p. 767.

R. C. W.
K. V. R.

Type.—Adult female. B. M. No. 12.8.25.1. Original number 1042. Collected by Mr. G. C. Shortridge, and presented to the National Collection by the Bombay Natural History Society.

Mr. Shortridge obtained thirty specimens, a very even series in colouring and measurements allowing for age.

We have named the species in memory of General Peyton, who for a generation was Conservator of Forests in, and virtual Rajah of Kanara.

B.—A NEW SPECIES OF KERIVOULA FROM N. W. MYSORE.

Horsfield (Researches in Java, 1824) described *Kerivoula hardwickii* on a specimen from Java. The national collection received a nice series of this Bat from the Balston Expedition to Java. These were collected by Mr. Shortridge in Java, and may be confidently accepted as representing true *hardwickii*.

In 1871 (P. A. S. B. p. 215) Dobson described *Kerivoula fusca*. Besides a few measurements and the colour. Dobson only records:—“On the outer side of the ear there is a wide emargination which forms the tip, and without which the ear would be regularly, broadly oval.” He adds, however, “this species differs from *K. hardwickii*, Horsf, which it resembles, in some respects, in the form of the ears, and colour and distribution of the fur.” In his Catalogue of the Chiroptera of the Indian Museum, Calcutta, (1876), Dobson sinks *fusca* as a synonym of *hardwickii*. His No. 682 in the Catalogue is probably the type of *fusca* but it is not so marked. This specimen is not available for examination, but in the Catalogue it is labelled “no locality” and “no history,” so that it may well have been a Java specimen and even one of Horsfield’s. In view of the evidence available, I have no hesitation in describing a specimen obtained by Mr. Shortridge in the Kardibetta Forest, Shimoga, as a distinct species, under the name of—

KERIVOULA CRYPTA, sp. n.

A *Kerivoula* rather similar to *hardwickii* in general appearance, but distinguished by its smaller and less emarginate ear, shorter wing, and darker colour.

Fur long and silky. General colour above pale “seal brown,” the individual hairs self-coloured to their bases (hairs in *hardwickii* are bicoloured); below somewhat paler. Fur not extending on to the wing or interfemoral membranes. Wings reaching to base of outer toe. Ears broadly oval, a well marked notch, but no “wide emargination” on the outer edge; tragus long, narrowing gradually to a sharp point.

Skull not differing materially from that of *hardwickii*.

Dimensions of the Type.—Head and body, 44 (41.45); tail, 42

(45·46); fore-arm, 31·5 (33·34, 7); ear, 12·5 (14·15); tibia, 16 (15·5, 16·5); hindfoot, 7 (6·8); middle finger, metacarpal 31 (38·6-36); first phalanx, 15 (15·8-17);—total, 65 (69-73·2).

Skull.—Condyllo-incisive length, 13·3 (13·2-14); basilar length, 11 (11-12); zygomatic breadth, 9 (9-9·5); braincase, 8·2 (7·8-8·2); front of upper canines to back of last molar, 5·5 (5·5-6); breadth across palate at front end of last molar, 5·5 (5·5-8).

(NOTE:—The figures between brackets are the maximum and minimum in three adult specimens of *hardwickii*.)

Habitat.—Shimoga, South India.

Type.—Adult male. B. M. No. 12.8.25.2. Original No. 1317, collected by Mr. G. C. Shortridge, on 20th June 1912, and presented to the National Collection by the Bombay Natural History Society.

C.—A NEW SPECIES OF HARE FROM THE CENTRAL PROVINCES.

Amongst the hares obtained by Mr. Crump in the Hoshangabad District are some specimens from the Mahadeo Hills, which are so markedly and distinctly different from those of the surrounding country that I propose to describe them as a new species under the name.

LEPUS MAHADEVA, sp. n.

The Pachmarhi Hare.

A hare, allied to *L. simcoxi*, with a similar grey neck, but distinguished from that species by its much richer, darker colouring and the absence of the grey patch on the rump, so characteristic of *L. simcoxi*.

General colour above "cinnamon rufous" strongly washed with black, individual hairs of the back white at the base (10 mm.) followed by black band (4·5 mm.), the remainder (12 mm.) about equally cinnamon and black; below pure white. The grey rump so characteristic of *simcoxi* almost or entirely wanting. The face coloured like the back, ears in front dark bistre, ticked with buffy. Cheeks between "wood-brown" and "cinnamon," much washed with black. Tail above dingy rufous, the individual hairs black with buffy tips. Nape grey, as in *simcoxi*.

On the whole the average size of the skull is smaller and the nasals narrower than in true *simcoxi*.

Dimensions of the Type (recorded by the Collector).—Head and body, 455; tail, 79; hindfoot, 102; ear, 94.

Skull.—Greatest length, 94; basal length, 74; zygomatic breadth, 44; greatest length of nasals, 40; palatal foramen, 24; upper molar series, 16.

Habitat.—Mahadeo Hills, Central Provinces. (Type from Dhaim). Altitude 2,300 ft.

Type.—Adult female. B. M. No. 12.7.8.1. Original No. 893. Collected by Mr. C. A. Crump, 10th February, 1912, and presented to the National Collection by the Bombay Natural History Society.

Mr. Crump obtained six specimens from various places round Pachmarhi. This is no doubt the representative of *simcoxi* in the altered conditions of hilly country, heavy rainfall, and thick forest found in the Mahadeo Hills. The dark and rich colouring and the absence of the pale grey rump distinguish it at once from *simcoxi*.

D.—THE GENERA LEGGADA AND MUS.

In a recent issue of this Journal (Vol. XXI, p. 772) Wroughton described, on a single specimen, taken by Mr. Crump at Asirgarh in the Ninar District, a new species, *Mus phillipsi*. A careful revision of the Ninar Collection (No. 4) has resulted in the discovery of two more specimens (♀ 180...Chikalda and ♀ 205...Pili Sipna Valley), from an examination of which we are now in a position to record that the mammary formula of *phillipsi* is $3-2=10$.

In the Bellary Collection there is a series of eight specimens, taken by Mr. Shortridge at Vijayanagar, which though closely allied to *phillipsi* represent a distinct species. Before describing this new form, however, we have felt compelled to enquire into the whole question of the status of the two Genera *Mus* and *Leggada*.

Leggada was separated from *Mus* by Gray, in 1837 (A.M.N.H. I, p. 586) when he included in it two species, viz., *booduga* and *platythrix*. Hitherto *booduga* has been accepted as best representing the genus, and the presence of "an additional lunate lobe at the base of the front edge" of the upper anterior molar, cited by Gray, has been regarded as the primary generic character. This position is no longer tenable, for recently a number of species, allied to *booduga*, have been discovered in Africa, in many of which this character is but imperfectly developed, and in some is entirely absent.

Mr. Thomas has pointed out to us that the name *Leggada* is based on "leggyade," the Kanarese name of *platythrix* (*teste* Elliot, Madr. Journ. L. & Sc. X, p. 215) and that, consequently, by the rule of tautonomy, *platythrix*, and not *booduga*, is the type species of the Genus *Leggada*, and has advised us to adopt the presence or absence of frontal ridges* on the skull as the primary generic character, in the place of the one mentioned above.

The adoption of this position necessitates a complete redistribution of the known species between the two Genera *Mus* and

* (Note.—These are well shown in the text block published on page 773 of a recent issue (Vol. xxi, 1912, of this Journal.)

Leggada. So far as the Indian species go* the following changes must be made in Blanford's Mammalia :—

1. In the key on p. 401, after the clause "A. Form slender; transverse laminae of molars considerably curved," insert :—

A¹—No frontal ridges; coat silky, almost or quite spineless*Mus*.

B¹—Frontal ridges present; coat spiny*Leggada*.

2. In the key on p. 405, after the clause "b³. Ear not extending to eye," insert :—

a¹. General colour dark brown.....*M. booduga*.

b¹. General colour pale grey*M. dunni*.

and delete entirely the last clause under "A "

viz:—"b. Dorsal fur mainly, or wholly, com-

posed of inflexible spines.....*M. platythrix*."

(Note:—We do not wish it to be understood that we accept all the rest of the key as it stands. The species included in it have in several cases been removed to other genera, for instance, the first ten species mentioned in it have, with others, been transferred to the genus *Epimys*. The remainder of section "A " however may be accepted as dealing with the genus *Mus*, after the change we have suggested above has been made).

3. Immediately after *Mus* insert a new genus *Leggada* with a key as follows :—

A Mammary formula 4—2=12; spines comparatively fine.

a. Size larger, hindfoot 18mm., skull 25.

a². General colour brown*L. platythrix*

b². General colour pale grey*L. sadhu*.

b. Size smaller, hind foot 16, skull 22; General

colour pale grey*L. cinderella*.

B. Mammary formula 3—2=10; spines coarse and stiff.

a. Size smaller, hind foot 15, skull 21

a². General colour dark grey, nearly black .*L. phillipsi*.

b². General colour pale grey*L. surkha*.

b. Size larger, hind foot 17-5, skull 27*L. bahadur*.

B. —A NEW SPECIES OF LEGGADA FROM BELLARY.

LEGGADDA SURKHA, sp. n.

A *Leggada* with mammary formula 3—2=10, and stiff coarse spines, as in *phillipsi*, but differing from that species in colouring.

Size about as in *phillipsi*. Fur composed of stiff, coarse spines intermixed with a few finer, buffy hairs. Length of spines on back 8mm. General colour above, pale fawn grey, individual spines pale slate grey, with dark tips; below pure white.

* (Note.—Apparently all the African species now classed as *Leggada* must be relegated to the Genus *Mus*.)

Tail coarsely ringed, darker above and paler below; sparsely clothed with short hairs. Pads of hindfoot 6. Mammæ 3—2=10.

Skull about the same size as in *L. phillipsi*. The parietals flatter and interorbital region broader than in that species; frontal ridges well marked and continuing backwards round the parietals.

Dimensions of the Type (measured in the flesh):—Head and body, 89; tail, 64; hindfoot, 15; ear, 12.

Skull:—Condylar-incisive length, 21 (21·5); basilar length, 18 (18); zygomatic breadth, 11·5 (11); nasals, 9 (9); diastema, 6, (6·5); upper molar series, 4 (3·7).

(NOTE:—The figures in brackets refer to skull measurements taken on the *type* of *L. phillipsi*).

Habitat:—Vijayanagar, Bellary District.

Type:—Adult male. B. M. No. 12·10·16·1. Original number 1651. Collected by Mr. G. C. Shortridge, 12th August 1912, and presented to the National Collection by the Bombay Natural History Society.

The series of eight specimens obtained by Mr. Shortridge is remarkably constant in colour and size.

The specific name is based on the Urdu word “surkha” meaning “grey”—as applied to an animal.

C—A NEW SPECIES OF LEGGADA FROM KANARA.

In working out the above our attention has been called to two spirit specimens of a mouse which were sent to us some time ago, by the Society, for determination. Unfortunately there is no history to these specimens except that they were taken at Karwar, in the Kanara District, and they have been so long in alcohol that the colour has been bleached out of them. They represent, however, a very distinct new species which we propose to call *L. bahadur*.

LEGGADA BAHADUR, sp. n.

A *Leggada* belonging to the group with 10 mammæ, but very markedly larger in size than either *phillipsi* or *surkha*.

Size large as compared with the other species in this section of *Leggada*, about as in *L. platythrix*. Coat composed almost entirely of coarse, stiff spines, as in *phillipsi* and *surkha*. General colour above probably some shade of grey (the specimens, owing to long immersion in alcohol, have turned a reddish colour), the individual spines pale at the base with dark tips; below pure white.

Skull the same size as in *platythrix*, which it resembles in shape in all essential characters.

Dimensions of the Type (measured on a spirit specimen):—Head and body, 85; tail, about 65-70 (broken); hindfoot, 17·5; ear, 13.

Skull :—Condyllo-incisive length, 27 ; basilar length, 23 ; zygomatic breadth, 13·5 ; nasal, 12 ; diastema, 8 ; upper molar series, 5.

Habitat :—Karwar, Kanara District.

Type :—Old female. B. M. No. 12·10·16·3. Presented to the National Collection by the Bombay Natural History Society.

It is unfortunate that there is no history of these two specimens, but it is to be hoped that a series, properly measured in the flesh, will now soon be obtained.

The second specimen, though showing the mammae quite plainly, is much younger and smaller, but though the combined head and body measurement is only 75 mm. and that of the skull less than 23 mm. the hindfoot is the same size as in the type specimen.

The specific name refers to its size, which is conspicuously greater than that of *phillipsi* and *sarkha*, and in which it equals *platythrix*, hitherto the giant of the Genus.

E.—GENERIC CLASSIFICATION OF THE INDIAN MURINÆ.

In the 20 years since Blanford published his Key at page 401 of the "Mammalia," great additions have been made to the knowledge of the Indian *Murinae*, a result the credit for which belongs largely to the Bombay Natural History Society. Since 1891 four Genera, not recognized by Blanford, have been revived, and no less than seven new ones have been established.

We recognize that any Key drawn up now will almost certainly require to be amended as the Survey progresses ; but we have found that for our own convenience some Key, based on our present knowledge, was necessary ; and we believe it will have a certain value, even though it be only provisional, in enabling Members interested to follow the results of the Survey intelligently.

We do not claim to have made any special investigations for the purposes of this Key, but have accepted the data recorded by Blanford, when such were available and suitable for our purpose.

"*Mus chiropus*," an aberrant species referred to by Blanford in his Key, seems, from the description recorded, to fit into the Genus *Hæromys* Thos. (A.M.N.H., p. 207., 1911). We have, therefore, included that genus in our Key to represent it. "*Mus erythrotis*," known only from a single immature specimen, appears to us generically indeterminable, and we have left it out of consideration.

The following is the Key :—

- I.—Tubercles on anterior lower molar in 3 longitudinal series; coat silky; mammae 2—2=8 HAPALOMYS.
- II.—Tubercles on anterior lower molar in 2 longitudinal series.

- A. First and fifth digits of all feet with flat nails; *coat silky*; *mammæ* 2—2=8... VANDELEURIA.
- B. Fifth digit with a claw.
 - a. Hallux with a flat nail.
 - a¹. Postero-internal cusp of upper molars present; *coat silky*; *mammæ* 0—2=4 CHIROPODOMYS
 - b¹. Postero-internal cusp of upper molars absent HÆRRROMYS.
 - b. Hallux with a claw.
 - a¹. Incisors longitudinally grooved; *coat harsh*; *plantar pads* 6; *mammæ* 2—2 = 8 GOLUNDA.
 - b¹. Incisors not longitudinally grooved.
 - a². Plantar pads less than 6.
 - a³. Plantar pads 4; *coat silky*; *mammæ* 1—2 = 6; *mesopterygoid fossa roofed in anteriorly* GRYPOMYS.
 - b³. Plantar pads 5; *coat varying in texture* *mammæ* 2—2 = 8 *mesopterygoid fossa normal* MILLARDIA.
 - b². Plantar pads 6
 - a³ Postero-internal cusp of upper molars present; *coat silky*; *mammæ* 1—2=6. APODEMUS
 - b³ Postero-internal cusp of upper molars absent,
 - a⁴. Bevelled edge of incisors notched; m¹ longer than m². and m³ combined.
 - a⁵. Frontal ridges well marked; *coat spiny*; *mammæ* 3—2=10 or 4—2 = 12. LEGGADA.
 - b⁵. Frontal ridges absent; *coat silky*; *mammæ* 3—2=10 MUS.
 - b⁴. Bevelled edge of incisors not notched; m¹ equal to or shorter than m² and m³ combined.
 - a⁵. Front edge of zygomatic plate concave; *coat harsh*; *mammæ* 2—2 = 8 HADROMYS!
 - b⁵. Front edge of zygomatic plate straight or convex.
 - a⁵. Transverse laminae of upper molars considerably curved.

- a*⁷. Mesopterygoid fossa roofed in anteriorly; coat spiny; mammæ 4—2 = 12 *PYROMYS*.
 - b*⁷. Mesopterygoid fossa normal.

 - a*⁸. Mammæ 1—2 = 6; coat silky *CREMNOMYS*
 - b*⁸. Mammæ more than 6; coat silky, sometimes mixed with spines *EPIMYS*.
 - b*⁶. Transverse laminae of upper molars straight.

 - a*⁷. Size large, head and body more than 300 mm.; coat harsh; mammæ 3—3 = 12. *BANDICOTA*.
 - b*⁷. Size smaller, head and body at most 225mm.

 - a*⁸. Palatal foramina long (8mm.); coat harsh; multimammate (16-18) *GUNOMYS*.
 - b*⁸. Palatal foramina short (5mm.); mammæ 2—2 = 8. *NESOKIA*.
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